UNIVERSITÄT LEIPZIG

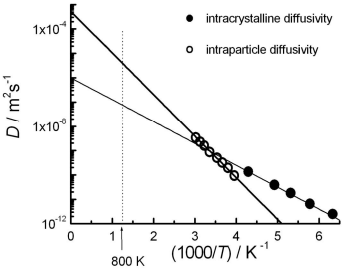
Fakultät für Physik und Geowissenschaften

Pulsed Field Gradient (PFG) NMR Diffusometry

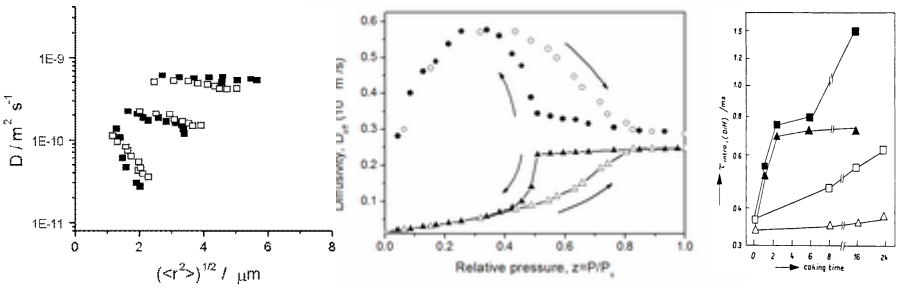
- Pulsed field gradient NMR spectrometers FEGRIS 125 NT and FEGRIS 400 FT (home-built, low frequency, special design for diffusion measurements with high time and dynamic spatial resolutions, Fourier transform mode)
- MRI spectrometer for spatially resolved relaxation and diffusion measurements (with low intensities of magnetic field gradients)
- MSL 300, MSL 500 and Avance 750 NMR spectrometers for relaxation measurements and spectral analysis (including magic angle spinning (MAS) option and MAS combined with pulsed field gradient NMR option
- For more detail, see:
  J. Kärger, D. M. Ruthven, D. N. Theodorou: Diffusion in nanoporous materials, Wiley-VCH, Weinheim 2012

- spatial dynamic resolution: from 100 nm to a few hundreds of micrometers
- time resolution: from 1 ms to a few seconds

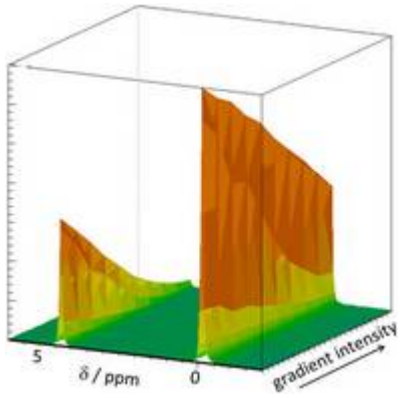
Intracrystalline and intraparticle diffusivities



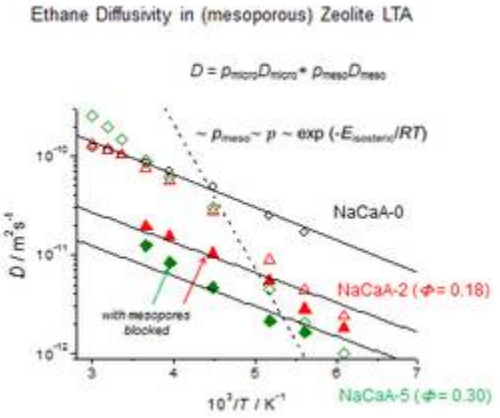
Diffusion at different length scales/phase composition/coke depositions

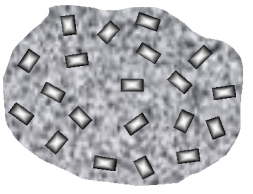


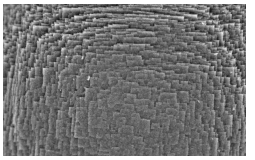
Multi-component diffusion in confined mixtures



Diffusion in hierarchical nanoporous solids with multiple porosities







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